AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.114 AND INTERVIEW SUMMARY   **Page 2**
Serial Number: 10/780,853   Dkt: 0063-106001/BU3034
Filing Date: February 19, 2004
Title: Method and Apparatus for Multi-Chip ARL Synchronization

AMENDMENTS TO THE CLAIMS

1.   (Currently Amended) A method of handling datagrams in a network device coupled to other network devices, the method comprising:

receiving an incoming datagram at a port of the network device;

determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram and a lookup of an address resolution lookup (ARL) table;

performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously;

writing an entry into the ARL table when the source address has not been learned previously;

determining whether the other network devices have learned the source address when the source address has been learned previously; and

when it is determined that the other network devices have not learned the source address:

sending, by the network device, a learning message with the source address to the other network devices ~~when it is determined that the other network devices have not learned the source address~~; and

~~continuing to relay~~ re-sending, by the network device, the learning message ~~from the network device~~ to the other network devices until the learning message is returned to the network device from one of the other network devices.

2.   (Previously Presented) The method of claim 1, wherein the method further comprises updating a hit bit in the ARL table when the source address has been learned previously.

3.   (Previously Presented) The method of claim 1, wherein determining whether the other network devices have learned the source address comprises examining a learned all devices tag for the source address in the ARL table.

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Page 3
Dkt: 0063-106001/BU3034

4.   (Previously Presented) The method of claim 1, wherein the network device and the other network devices are connected through a ringed connection and continuing to relay the learning message comprises continuing to relay the learning message through the ringed connection.

5.   (Canceled)

6.   (Previously Presented) The method of claim 4, wherein determining an egress port comprises flooding all ports of the network device with the incoming datagram when the lookup of the ARL table does not find a match with the destination address.

7.   (Previously Presented) The method of claim 1, wherein receiving an incoming datagram comprises receiving an incoming data packet.

8.   (Currently Amended) A network device coupled to other network devices for handling datagrams comprising:
    a plurality of ports for receiving an incoming datagram;
    one or more datagram processing devices;
    a computer readable storage medium coupled with the one or more datagram processing devices, the computer readable storage medium having instructions stored thereon, wherein the instructions, when executed by the one or datagram processing devices, provide for implementing:
        an address resolution lookup (ARL) table;
        means for determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram;
        lookup means for performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously;
        writing means for writing an entry into the ARL table when the source address has not been learned previously; and

determining means for determining whether the other network devices have

learned the source address when the source address has been learned previously; and

relaying means for relaying a learning message with the source address from the network

device to the other network devices when it is determined that the other network devices have

not learned the source address, wherein the relaying means continues to relay repeatedly relays

the learning message from the network device to the other network devices until the learning

message is returned to the network device from one of the other network devices.

9.   (Previously Presented) The network device of claim 8, wherein the instructions,

when executed by the one or more datagram processing devices, further provide for

implementing updating means for updating a hit bit in the ARL table when the source address

has been learned previously.

10.   (Previously Presented) The network device of claim 8, wherein the determining

means comprises examining means for examining a learned all devices tag for the source address

in the ARL table.

11.   (Previously Presented) The network device of claim 8, wherein the network

device and the other network devices are connected through a ringed connection and the relaying

means comprises a ring relaying means for relaying the learning message through the ringed

connection.

12.   (Previously Presented) The network device of claim 8, wherein the network

device is connected to the other network devices through one of a stacking port of the network

device and an expansion port of the network device.

13.   (Previously Presented) The network device of claim 8, wherein the means for

determining an egress port comprises a flooding means for flooding all ports of the network

device with the incoming datagram when the lookup of the ARL table does not find a match with

the destination address.

14.   (Currently Amended) A network device coupled to other network devices for handling datagrams comprising:

a plurality of ports configured to receive an incoming datagram;

a computer readable storage medium coupled with the one or more datagram processing devices, the computer readable storage medium having instructions stored thereon, wherein the instructions, when executed by the one or datagram processing devices, provide for implementing:

an address resolution lookup (ARL) table;

an egress port determiner configured to determine an egress port for the incoming datagram based on a destination address contained in the incoming datagram;

an ARL table reader configured to perform a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously;

an ARL table writer configured to write an entry into the ARL table when the source address has not been learned previously; and

a global address determiner configured to determine whether the other network devices have learned the source address when the source address has been learned previously; and

a learning message forwarder configured to relay a learning message with the source address from the network to the other network devices when it is determined that the other network devices have not learned the source address, wherein the learning message forwarder is further configured to continue to repeatedly relay the learning message from the network device to the other network devices until the learning message is returned to the network device from one of the other network devices.

15.   (Previously Presented) The network device of claim 14, wherein the instructions, when executed by the one or more datagram processing devices, further provide for implementing an updater configured to update a hit bit in the ARL table when the source address has been learned previously.

16.   (Previously Presented) The network device of claim 14, wherein the global address determiner comprises an examiner configured to examine a learned all devices tag for the source address in the ARL table.

17.   (Previously Presented) The network device of claim 14, wherein the network device and the other network devices are connected through a ringed connection and the learning message forwarder comprises a ring message forwarder configured to relay the learning message through the ringed connection.

18.   (Previously Presented) The network device of claim 14, wherein the network device is connected to the other network devices through one of a stacking port of the network device and an expansion port of the network device.

19.   (Previously Presented) The network device of claim 14, wherein the egress port determiner comprises a port flooder configured to flood all ports of the network device with the incoming datagram when the lookup of the ARL table does not find a match with the destination address.